

Amendments to the Claims

This listing of claims will replace all prior versions and listing of claims in the application. Please cancel claims 7 and 8 without prejudice, and amend claims 1, 26, 30-32, and 44-51 as shown.

1. (currently amended): A polymeric membrane prepared by ~~the~~a method comprising: reacting a mixture comprising a pre-polymer having a plurality of crosslinkable moieties with a polyfunctional crosslinking agent, wherein the crosslinkable moieties are crosslinked with the polyfunctional crosslinking agent ~~and~~, wherein the weight range of the polyfunctional crosslinking agent in the ~~polymeric membrane~~mixture is between about 1% and about 1,500% w/w, and wherein the pre-polymer has a molecular weight range of about 20,000 to about 30,000.

2. (previously presented): The polymeric membrane according to claim 1, wherein the membrane is a hydrogel.

3. (previously presented): The polymeric membrane according to claim 1, wherein the pre-polymer is formed from a homopolymer or a copolymer.

4. (previously presented): The polymeric membrane according to claim 3, wherein the pre-polymer is substantially devoid of charge.

5. (previously presented): The polymeric membrane according to claim 4, wherein the pre-polymer is hydrophilic and water soluble.

6. (previously presented): The polymeric membrane according to claim 5, wherein the crosslinkable moieties of the pre-polymer are hydroxy groups.

7. (canceled).

8. (canceled).

9. (previously presented): The polymeric membrane according to claim 1, wherein the pre-polymer is a synthetic polymer formed by chain growth polymerization, condensation polymerization, or by both chain growth polymerization and condensation polymerization.

10. (previously presented): The polymeric membrane according to claim 9, wherein the synthetic pre-polymer is selected from the group consisting of poly(vinyl alcohol), partially esterified poly(vinyl alcohols), copolymers of poly(vinyl alcohols), polymers of hydroxyethylmethacrylate and hydroxyethylacrylate, and polymers of glycidylacrylate and glycidylmethacrylate.

11. (previously presented): The polymeric membrane according to claim 10, wherein the pre-polymer is poly(vinyl alcohol).

12. (previously presented): The polymeric membrane according to claim 1, wherein the pre-polymer is a natural polymer.

13. (previously presented): The polymeric membrane according to claim 12, wherein the natural pre-polymer is selected from the group consisting of starch, dextrans, cellulose derivatives, agarose, modified agaroses, and other polysaccharides.

14. (previously presented): The polymeric membrane according to claim 1, wherein the polyfunctional crosslinking agent contains at least 2 functional groups that are capable of reacting with the crosslinkable moieties of the pre-polymer to form covalent bonds.

15. (previously presented): The polymeric membrane according to claim 1, wherein the polyfunctional crosslinking agent is substantially uncharged and does not result in a significant degree of charged groups via side reactions.

16. (previously presented): The polymeric membrane according to claim 1, wherein the polyfunctional crosslinking agent is hydrophilic.

17. (previously presented): The polymeric membrane according to claim 1, wherein the polyfunctional crosslinking agent is selected from the group consisting of dialdehydes, diisocyanates, diacids, water soluble epoxides, diesters, diacid halides, free or etherified N-methylol ureas or N-methylol melamines, dihalogen compounds, epichlorhydrin, dianhydrides, dicarboxylic acids, citric acid, olefinic dialdehydes, phthalaldehyde, 1,3-dichloroacetone, and 1,3-dichloroisopropanol.

18. (previously presented): The polymeric membrane according to claim 17, wherein the polyfunctional crosslinking agent is a dialdehyde.

19. (previously presented): The polymeric membrane according to claim 19, wherein the polyfunctional crosslinking agent is selected from the group consisting of glutaraldehyde, 2-hydroxyhexane-1,6-dial, malonic dialdehyde, succinic dialdehyde, and hexane-1,6-dial.

20. (previously presented): The polymeric membrane according to claim 19, wherein the polyfunctional crosslinking agent is glutaraldehyde.

21. (previously presented): The polymeric membrane according to claim 1, wherein the pre-polymer is a poly(vinyl alcohol) and the polyfunctional crosslinking agent is glutaraldehyde.

22. (previously presented): The polymeric membrane according to claim 1, wherein the weight range of the polyfunctional crosslinking agent in the polymeric membrane is between about 1% and about 20% w/w.

23. (previously presented): The polymeric membrane according to claim 1, wherein the polyfunctional crosslinking agent is a dialdehyde and wherein the weight range of the dialdehyde in the polymeric membrane is between about 1% and about 20% w/w.

24. (previously presented): The polymeric membrane according to claim 23, wherein the weight range of the dialdehyde is between about 4% and about 15% w/w.

25. (previously presented): The polymeric membrane according to claim 24, wherein the weight range of the dialdehyde is between about 4.5% and about 9.2% w/w.

26. (currently amended): The polymeric membrane according to claim 1, wherein the polyfunctional crosslinking agent is a divinyl sulfone and wherein the weight range of the divinyl sulfone in the ~~polymeric membrane~~mixture is between about 20% and about 60% w/w.

27. (previously presented): The polymeric membrane according to claim 26, wherein the weight range of the divinyl sulfone is between about 40% and about 50% w/w.

28. (previously presented): The polymeric membrane according to claim 27, wherein the weight range of the divinyl sulfone is about 45% w/w.

29. (previously presented): The polymeric membrane according to claim 27, wherein the weight range of the divinyl sulfone is between about 45% and about 50% w/w.

30. (currently amended): The polymeric membrane according to claim 1, wherein the polyfunctional crosslinking agent is a glycol diglycidyl ether and wherein the weight range of the

glycol diglycidyl ether in the ~~polymeric membrane~~mixture is between about 500% and about 1,500 % w/w.

31. (currently amended): The polymeric membrane according to claim 1, wherein the percentage of the reacted pre-polymer in the membrane is about 5% to about 40% w/w.

32. (currently amended): The polymeric membrane according to claim 31, wherein the percentage of the reacted pre-polymer in the membrane is about 10% to about 20% w/w.

33. (previously presented): The polymeric membrane according to claim 1, wherein the membrane is supported by a substrate.

34. (previously presented): The polymeric membrane according to claim 33, wherein the substrate is a woven material, a non-woven material, or a textile.

35. (previously presented): The polymeric membrane according to claim 33, wherein the substrate is in the form of a sheet or web.

36. (previously presented): The polymeric membrane according to claim 33, wherein the polymeric membrane is a layer formed on the surface of the substrate, or the substrate is incorporated within the polymeric membrane.

37. (previously presented): The polymeric membrane according to claim 33, wherein the substrate is formed from a material selected from the group consisting of poly(vinyl alcohol), polyethyleneterephthalate, nylon and fibreglass, cellulose, and cellulose derivatives.

38. (previously presented): The polymeric membrane according to claim 37, wherein the substrate is heat bonded polyethyleneterephthalate, optionally pre-treated with a non-ionic surfactant.

39. (previously presented): The polymeric membrane according to claim 33, wherein the substrate has hydrophilic characteristics.

40. (previously presented): The polymeric membrane according to claim 39, wherein the substrate is poly(vinyl alcohol) paper.

41. (previously presented): The polymeric membrane according to claim 1, wherein the crosslinkable moieties are treated with a coordinating agent.

42. (previously presented): The polymeric membrane according to claim 41, wherein the coordinating agent is in the form of a buffer.

43. (previously presented): The polymeric membrane according to claim 41, wherein the coordinating agent is borate.

44. (currently amended): A method for forming a polymeric membrane, comprising the steps of:

~~providing~~ reacting a mixture comprising a pre-polymer having a plurality of crosslinkable moieties; ~~and~~

~~contacting the pre-polymer~~ with a polyfunctional crosslinking agent;

wherein the crosslinkable moieties are crosslinked with the polyfunctional crosslinking agent, wherein the weight range of the polyfunctional crosslinking agent in the mixture is between about 1% and about 1,500% w/w, and wherein the pre-polymer has a molecular weight range of about 20,000 to about 30,000.

45. (currently amended): A method for separating molecules comprising the steps of:

providing a polymeric membrane ~~formed by reacting a pre-polymer having crosslinkable moieties with a polyfunctional crosslinking agent, wherein the crosslinkable moieties are crosslinked with the polyfunctional crosslinking agent~~according to claim 1; and
subjecting the polymeric membrane and a sample comprising a mixture of molecules to be separated to a separation technique ~~so as to separate~~whereby the molecules are separated.

46. (currently amended): A-The method according to claim 45, wherein the molecules to be separated are a charged species, or a species capable of bearing a charge.

47. (currently amended): A-The method according to claim 46, wherein the molecules to be separated ~~is-a~~are bio-molecules.

48. (currently amended): A-The method according to claim 47, wherein the bio-molecules ~~is-are~~are selected from the group consisting of proteins, peptides, DNA and RNA.

49. (currently amended): A-The method according to claim 45, wherein the separation technique is an electrophoretic technique.

50. (currently amended): A-The method according to claim 49, wherein the electrophoretic technique ~~allows for the separation of~~separates molecules on the basis of size, charge, or both size and charge.

51. (currently amended): A-The method according to claim 45, wherein the sample ~~contains-comprises~~a protein and a borate in solution, and the protein is used to concentrate the protein sample.

52. (previously presented): A cartridge suitable for use in an electrophoretic device, comprising the polymeric membrane according to claim 1.

53. (previously presented): An electrophoretic device comprising at least one polymeric membrane according to claim 1 disposed between two membranes.